



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,595	04/05/2006	Hiroshi Doi	MAT-8834US	4973
52473	7590	02/21/2008		
RATNERPRESTIA P.O. BOX 980 VALLEY FORGE, PA 19482			EXAMINER BATISTA, MARCOS	
			ART UNIT 4134	PAPER NUMBER
			MAIL DATE 02/21/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/574,595	<b>Applicant(s)</b> DOI ET AL.	
	<b>Examiner</b> MARCOS BATISTA	<b>Art Unit</b> 4134	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04/05/2006</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 3, 4, 5, 14, 15, 16, 17, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu (US 7103371 B1), hereafter "Liu," in view of Mano (US 6778586 B1), hereafter "Mano."

Consider claims 1 and 14, Liu discloses a step in which a radio communication device sends communication time reservation request information addressed to another radio communication device, in which a time slot when data will be transmitted to another radio communication device is written (see abstract, Fig 7A, col. 10 lines 66-67, col. 11 lines 1-34). Liu also teaches a step in which the second radio communication device sends communication time reservation response information, in which notice of reception of the communication time reservation request information is added to the communication time reservation request information (see Fig 7A, col. 12 lines 9-22). Liu further teaches a step in which a third radio communication device which has received the communication time reservation request information from the first radio communication device or the communication time reservation response information

from the second radio communication device or both stores the time slot written in the communication time reservation request information or the communication time reservation response information as a transmission prohibited time slot (see col. 11 lines 43-59).

Liu teaches a step in which a radio communication device sends communication time reservation request information addressed to another radio communication device, in which a time slot when data will be transmitted to another radio communication device is written. Liu also teaches a step in which the second radio communication device sends communication time reservation response information, in which notice of reception of the communication time reservation request information is added to the communication time reservation request information and a step in which a third radio communication device which has received the communication time reservation request information from the first radio communication device or the communication time reservation response information from the second radio communication device or both stores the time slot written in the communication time reservation request information or the communication time reservation response information as a transmission prohibited time slot. But Liu does not particular refer to a step in which the third radio communication device decides upon a time slot in which its own transmission and reception are possible, based on the stored transmission prohibited time slots. Mano teaches a step in which the third radio communication device decides upon a time slot

in which its own transmission and reception are possible, based on the stored transmission prohibited time slots (see col. 4 lines 6-11).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Liu and have it include a step in which the third radio communication device decides upon a time slot in which its own transmission and reception are possible, based on the stored transmission prohibited time slots, as taught by Mano. The motivation would have been in order to prevent beacon collisions as different communication apparatuses try to communicate one another in the same network (see col. 4 lines 6-11).

Consider claim 2, Liu as modified by Mano teaches claim 1 and 14 above. Liu also teaches the third radio communication device prohibits transmission in all time slots written in the stored communication time reservation request information or the communication time reservation response information (see col. 11 lines 43-59).

Consider claims 3 and 19, Liu as modified by Mano teaches claim 1 above. Liu also teaches notice of the time slot is given in the form of a data-transmission start time and a data transmission dedicated time (see col. 12 lines 28-37).

Consider claim 4, Liu as modified by Mano teaches claim 1 and 14 above. Liu also teaches the first radio communication device transmits a communication request signal RTS including communication time reservation request information and the second radio communication device transmits a communication confirmation signal CTS including communication time reservation response information time (see col. 3 lines 21-24, col. 12 lines 33-37).

Consider claim 5, Liu as modified by Mano teaches claim 1 and 14 above. Liu also teaches the communication time reservation request information and the communication time reservation response information also includes the channel used for communication, in which even when the time slot of data transmission recorded in the communication prohibition table is the same, the communication time reservation request and the data transmission are possible if the channel whereby the first radio communication device performs transmission is different from information of communication prohibition table (see col. 11 lines 43-59 - channel information is provided in terms of slot information and if the slot is different, communication among other devices can be accomplished).

Consider claim 15, Liu as modified by Mano teaches claims 1 and 14. Liu also teaches a communication prohibition table in which the communication information analysis unit records the identifier, the reservation time slot and the destination, associating them with one another, when the radio communication device is not the destination of the radio communication data, and wherein the response information generation unit generates communication time reservation response information to which the notice of communication prohibition is added when the received radio communication data addressed to it requests to reserve communication in a time slot which overlaps with a time slot recorded in the communication prohibition table (see col. 11 lines 20-34).

Consider claim 16 Liu as modified by Mano teaches claims 1 and 14. Liu also teaches a communication data generation unit generating transmission data addressed

Art Unit: 4134

to another radio communication device (see abstract, col. 3 lines 14-26). Liu further teaches a communication information generation unit generating communication time reservation request information including a transmission time slot, deciding on a time slot other than time slots recorded in the communication prohibition table as the transmission time slot for transmission of data generated by the communication data generation unit, and wherein said transmitting unit transmits the communication time reservation request information to a destination radio communication device (see col. 11 lines 43-59).

Consider claim 17, Liu as modified by Mano teaches claims 1 and 14 above. Liu also teaches an event timer, which notifies the communication data generation unit that the transmission time has elapsed when it receives the notification of the transmission time from the communication information generation unit, and wherein when the communication data generation unit receives the notification, it generates communication data and transmits the data to the destination radio communication device (see col. 13 lines 37-45).

Consider claim 18, Liu as modified by Mano teaches claims 1 and 14 above. Liu also teaches the communication time reservation request information and the communication time reservation response information also includes the channel used for communication, in which even when the time slot of data transmission recorded in the communication prohibition table is the same, the communication time reservation request and the data transmission are possible if the channel whereby the first radio communication device performs transmission is different from information of

communication prohibition table (see col. 11 lines 43-59 - channel information is provided in terms of slot information and if the slot is different, communication among other devices can be accomplished).

3. Claims 6, 7, 8, 9, 10, 11, 12, 13, 20, 21, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu (US 7103371 B1), hereafter "Liu," in view of Mano (US 6778586 B1), hereafter "Mano," further in view of Sugaya (US 20040053621 A1), hereafter "Sugaya."

Consider claim 6, Liu as modified by Mano teaches claims 1 and 14 above. Liu also teaches a step in which the first radio communication device transmits data in the time slot of which the second radio communication device has been notified (see Fig 13, col. 13 lines 9-27). But Liu does not particular refer to a step in which the second radio communication device detects collisions while receiving data or a step in which the second radio communication device gives notice of the collision to the first radio communication device when the number of collisions is more than or equal to the prescribed number of times or a step in which when the first radio communication device receives the notification of collision, it transmits communication time reservation request information addressed to the second radio communication device, in which the time slot for transmitting data is set to be a time slot different from the previous one. Sugaya teaches a step in which the second radio communication device detects collisions while receiving data (see Fig 10, [0043]). Sugaya also teaches a step in which



the second radio communication device gives notice of the collision to the first radio communication device when the number of collisions is more than or equal to the prescribed number of times (see [0049]). Sugaya further teaches a step in which when the first radio communication device receives the notification of collision, it transmits communication time reservation request information addressed to the second radio communication device, in which the time slot for transmitting data is set to be a time slot different from the previous one. (see [0049]).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Liu and have it include a step in which the second radio communication device detects collisions while receiving data, a step in which the second radio communication device gives notice of the collision to the first radio communication device when the number of collisions is more than or equal to the prescribed number of times and a step in which when the first radio communication device receives the notification of collision, it transmits communication time reservation request information addressed to the second radio communication device, in which the time slot for transmitting data is set to be a time slot different from the previous one , as taught by Sugaya. The motivation would have been in order to efficiently perform data transmission (see Fig 10, [0049]).

Consider claim 7, Liu as modified by Mano and further modified by Sugaya teaches claims 1 and 14 above. Liu also teaches a step in which the first radio communication device transmits data in the time slot of which the second radio communication device has been notified (see Fig 13, col. 13 lines 9-27). Liu also

Art Unit: 4134

teaches a step in which when the second radio communication device receives the request, it transmits the transmission prohibited time slots Or.a transmission-permitted time slot to the first radio communication device (see Fig 13, col. 11 lines 9-41). Liu further teaches a step in which the first radio communication device selects a time slot which satisfies the conditions prescribed by the transmission prohibited time slots or the transmission permitted time slot received from the second radio communication device and notifies the second radio communication device of the time slot as communication time reservation request information (see col. 10 lines 49-65, col. 11 lines 43-59). Sugaya teaches a step in which the second radio communication device detects collisions while receiving data (see Fig 10, [0043]). Sugaya also teaches a step in which the second radio communication device gives notice of the collision to the first radio communication device when the number of collisions is more than or equal to the prescribed number of times (see [0049]). Sugaya further teaches a step in which when the first radio communication device receives the notification of collision, it transmits communication time reservation request information addressed to the second radio communication device, in which the time slot for transmitting data is set to be a time slot different from the previous one. (see [0049]). Sugaya also teaches a step in which when the first radio communication device receives the notification of collision, it requests the second radio communication device to give the time slots in which transmission is prohibited or a time slot in which transmission is permitted (see [0044]). The motivation would have been in order to efficiently perform data transmission (see Fig 10, [0049]).

Consider claim 8, Liu as modified by Mano and further modified by Sugaya teaches claims 1 and 14 above. Liu also teaches a step in which when the first radio communication device transmits the communication time reservation request information to the second radio communication device, the second radio communication device checks whether the information overlaps with communication time reservation request information received from another radio communication device as a third radio communication device (see Fig 7A, Fig 7B, col. 11 20-34). Liu further teaches a step in which the first radio communication device transmits data to the second radio communication device (see Fig 10, Fig 13, col. 14 lines 62-66). Liu also teaches a step in which the first radio communication device transmits information of communication time reservation in accordance with the notification of the collision-free time slot made in response to the inquiry from the second radio communication device (see col. 12 lines 28-37). Sugaya teaches a step in which when the second radio communication device detects a collision, it adds information indicating the overlap to the communication time reservation response information (see 0049). Sugaya further teaches a step in which when the first radio communication device detects information indicating an overlap and detects that a response to data is not returned, this constitutes detection of a collision (see [0049]). Sugaya also teaches a step in which when the number of collisions per unit time is more than or equal to the prescribed number, the first radio communication device inquires of the second radio communication device regarding the time when the first radio communication device does not collide (see [0049]). The motivation would have been in order to efficiently perform data transmission (see Fig 10, [0049]).

Consider claim 9, Liu as modified by Mano and further modified by Sugaya teaches. Liu also teaches a step in which when the transmission prohibited time slot decided based on communication time reservation request information or communication time reservation response information or both which are not addressed to the second radio communication device overlaps with a time slot in which communication addressed to the second radio communication device is reserved, the second radio communication device forwards communication time reservation request information and communication time reservation (see Figs 7A, 7B, col. 11 lines 20-34).

Consider claim 10, Liu as modified by Mano and further modified by Sugaya teaches claims 1 and 14 above. Liu also teaches a step in which the first radio communication device transmits data in the time slot of which notice has been given to the second radio communication device (see Fig 13, col. 13 lines 9-27). Sugaya teaches a step in which the second radio communication device detects collisions while receiving data (see Fig 10, [0043]). Sugaya also teaches a step in which the second radio communication device gives notice of the collision and of the transmission prohibited time slots or a transmission permitted time slot to the first radio communication device (see [0049]). Sugaya also teaches a step in which when the first radio communication device receives the collision notification, it selects a time slot which satisfies the conditions prescribed by the transmission prohibited time slots or the transmission-permitted time slot received from the second radio communication device and gives notice of the time slot satisfying the conditions to the second radio

communication device as communication time reservation request information (see [0049]). The motivation would have been in order to efficiently perform data transmission (see Fig 10, [0049]).

Consider claims 11, 20, 21, 22 and 23, Liu as modified by Mano and further modified by Sugaya teaches claims 1 and 14 above. Sugaya also teaches the second radio communication device detects that there has been a collision when data has not been received in a time slot where the transmission prohibited time slot calculated based on the received communication time reservation request information or the communication time reservation response information or both which are not addressed to it, and the time slot reserved for communication addressed to it overlap (see [0033]). The motivation would have been in order to efficiently perform data transmission (see Fig 10, [0049]).

Consider claim 12, Liu as modified by Mano and further modified by Sugaya teaches claims 1 and 14 above. Sugaya teaches the number of detected collisions is less than the prescribed number, the second radio communication device stops giving notice of its transmission prohibited time slots or its transmission-permitted time slot (see [0040], [0081]). The motivation would have been in order to efficiently perform data transmission (see Fig 10, [0040]).

Consider claim 13, Liu as modified by Mano and further modified by Sugaya teaches claims 1 and 14 above. Liu also teaches the ratio between the transmission prohibited time slot and the transmission permitted time slot is no more than the prescribed value, the second radio communication device stops giving notice of the

transmission prohibited time slot or the transmission-permitted time slot to the first radio communication device (see col. 11 lines 20-34).

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Marcos Batista, whose telephone number is (571) 270-5209. The Examiner can normally be reached on Monday-Thursday from 8:00am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Derrick Ferris can be reached at (571) 272-3123. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Art Unit: 4134

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

*Marcos Batista*

/M. B./

02/13/2008

/DERRICK W FERRIS/

Supervisory Patent Examiner, Art Unit 4134